

# Landsat 7 Mission Extension Discussion

# Issue

- While electro-mechanical failures can lead to the termination of the mission at any time, from a science perspective, it will be Landsat 7's inability to collect useful science data that will truly bring an end to the mission.
- Given the continued healthy operation of the satellite and ETM+, LST input is needed to determine the threshold of performance where the ETM+ cannot collect data suitable for *meaningful* exploitation by end-users or justify inclusion into the national archive.
- Assuming a healthy instrument and spacecraft, the most likely issue to be faced is the exhaustion of fuel needed to maintain the equatorial mean-local crossing time (MLT), leading to ever-earlier observations.
- Nominally we have been using 9:30am MLT as the point where we would begin decommissioning Landsat 7. But we know from Landsat 4/5 operations that data has been collected to much earlier MLTs ( $\approx$ 9:12am).
- From the LST's perspective, and using the historical data as a guide, please be prepared to address the following questions when we meet in July:

# Discussion Questions

The following questions requires the team's assessment of what constitutes 'compromised' and the idea of *relatively* unusable data.

1. At what Mean Local Time (MLT) will the usefulness of the ETM+ data begin to be compromised?
2. What are the applications which will be impacted most significantly?
3. What is believed to be the point where further collections are not justified?
4. What are the measures used to reach this conclusion?